

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
18 October 2001 (18.10.2001)

PCT

(10) International Publication Number
WO 01/76577 A3

(51) International Patent Classification⁷: **A61K 31/66, 45/06, A61P 19/10 // (A61K 45/06, 31:685, 31:66)**

(81) Designated States (national): AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW.

(21) International Application Number: **PCT/US01/11375**

(22) International Filing Date: **6 April 2001 (06.04.2001)**

(25) Filing Language: **English**

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

(30) Priority Data:
60/195,562 **7 April 2000 (07.04.2000) US**

Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(71) Applicant: **THE BOARD OF REGENTS OF THE UNIVERSITY OF TEXAS SYSTEM [US/US]**; Office of General Counsel, 201 W. 7th Street, Austin, TX 78701 (US).

(88) Date of publication of the international search report:
13 June 2002

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(72) Inventor: **LICHENBERGER, Lenard, M.**; 5427 Darnell, Houston, TX 77096 (US).

(74) Agent: **STROZIER, Robert, W.**; Robert W. Strozier, P.L.L.C., Suite 930, 2925 Briarpark Drive, Houston, TX 77042 (US).

WO 01/76577 A3

(54) Title: **UNIQUE COMPOSITIONS OF ZWITTERIONIC PHOSPHOLIPIDS AND BISPHOSPHONATES AND USE OF THE COMPOSITIONS AS BISPHOSPHATE DELIVERY SYSTEMS WITH REDUCED GI TOXICITY**

(57) Abstract: Compositions and methods for treating osteoporosis using the compositions are disclosed where the compositions have reduced GI toxicity and improved bio-availability and include a bisphosphonate and zwitterionic phospholipid.

INTERNATIONAL SEARCH REPORT

International Application No	
PCT/US 01/11375	

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 A61K31/66 A61K45/06 A61P19/10 // (A61K45/06, 31:685, 31:66)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data, BIOSIS, CHEM ABS Data, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>N. VAN ROOIJEN, A. SANDERS: "Manipulation of Kupffer cells by liposome encapsulated clodronate and propamidine-synergistic and antagonistic effects of liposomal phospholipids and drugs" <i>INTERNATIONAL JOURNAL OF PHARMACEUTICS</i>, vol. 162, no. 1-2, 1998, pages 51-58, XP001064839 page 51 page 54 page 56</p> <p>---</p> <p style="text-align: center;">-/-</p>	1

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- °A° document defining the general state of the art which is not considered to be of particular relevance
- °E° earlier document but published on or after the international filing date
- °L° document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- °O° document referring to an oral disclosure, use, exhibition or other means
- °P° document published prior to the international filing date but later than the priority date claimed

- °T° later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- °X° document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- °Y° document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- °&° document member of the same patent family

Date of the actual completion of the international search

12 April 2002

Date of mailing of the international search report

22/04/2002

Name and mailing address of the ISA
 European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.
 Fax: (+31-70) 340-3016

Authorized officer

Peeters, J

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 01/11375

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	<p>WO 00 61111 A (ASTRAZENECA) 19 October 2000 (2000-10-19)</p> <p>claims 1,21,22,30,33,35,37,38 page 6, line 21-24 page 8, line 24,25 page 9, line 19-21 page 13, line 17-21</p> <p>-----</p>	<p>1-3,8, 14, 16-22, 25, 28-30, 33,36, 37,39</p>

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/11375

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0061111	A 19-10-2000	AU 4161900 A EP 1171097 A1 NO 20014895 A WO 0061111 A1	14-11-2000 16-01-2002 10-12-2001 19-10-2000